

Trend Study 16B-12-97

Study site name: Oak Creek.

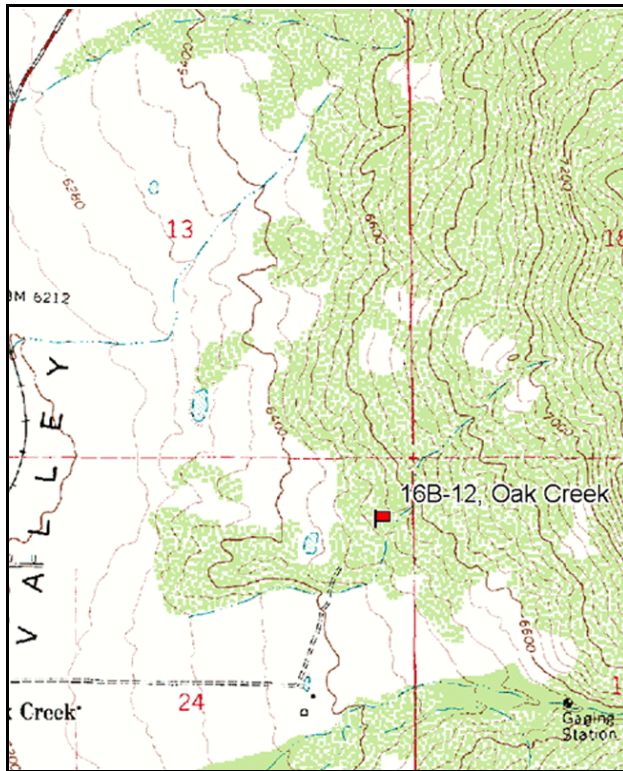
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 174 degrees magnetic (line 3 @ 142°M).

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (71ft), line 4 (59ft).

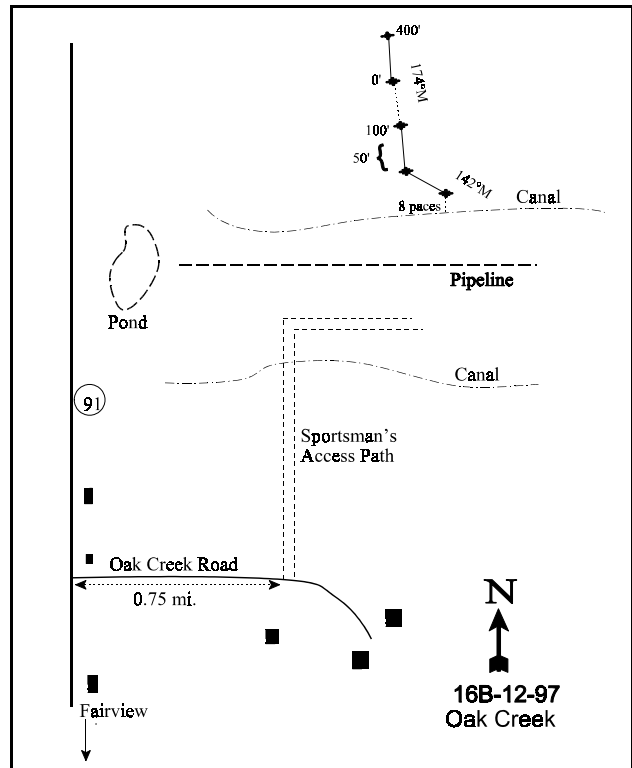
LOCATION DESCRIPTION

From Walkers Food and Fuel in Fairview, take SR-91 (Milburn Road) 2.8 miles. Turn right (east) on 27500 North which is also known as Oak Creek Road. Go 0.75 miles and stop at the locked gate/sportsmen's access route. From here, walk north between the fences, across the canal to the top of the hill where the fenced path turns and goes east. From this corner, walk 55 paces eastward along the path to a clump of oak brush next to the fence on the north side. At this point there is a red steel fence post 7 paces north of the fence which marks the beginning of the old line intercept transect. From this post, walk north crossing the canal. Eight paces past the canal is the 300-foot post.



Map Name: Fairview

Township 13S, Range 4E, Section 24



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4392077 N 464331 E

DISCUSSION

Oak Creek - Trend Study No. 16B-12

*****SUSPENDED** - This study was not read in 2002. A pellet group transect was read in 2002 to determine use by wildlife and livestock. It was evaluated by project personnel and will likely be suspended in the future because it samples mostly thermal and escape cover. Very little forage for big game is found in the vicinity, and this site acts mostly as a travel corridor for big game moving to and from better wintering habitat. Data tables and the site narrative are included below from the 1997 report. This study would be a good candidate for treatment, it's value for big game would be greatly enhanced.

The original site at Oak Creek was a line-intercept transect established in 1978. It was mostly destroyed by pipeline construction and a new trend study was established nearby in the same juniper/mountain brush type in 1989. The area receives year-round deer use with some elk sign also encountered. This private land did not appear to be grazed by domestic livestock with any regularity in 1989. Some livestock use in the form of cattle, sheep, and horses was evident in 1997. Pellet group transect data collected in 2002 estimated 41 deer days use/acre (101 ddu/ha) and 5 elk days use/acre (12 edu/ha). Wildlife likely use this area as thermal cover during the winter and forage in nearby alfalfa fields.

The site is nearly level with a south-southwest aspect and an elevation of 6,500 feet. Soil depth is variable on the site with an effective rooting depth that averages almost 13 inches. Soil texture is a clay loam with a neutral pH (7.3). The soil is rocky with pavement concentrated in the bare shrub interspaces. The top soil is easily disturbed and soil movement is noticeable, yet erosion is localized due to the gentle terrain. Litter cover is relatively high (averaging 60%), but is usually associated with the shrubs and trees.

The overstory is comprised of juniper and oakbrush. They respectively account for 37% and 52% of the shrub cover. Density estimates of the mature juniper trees using point-quarter data is 253 per acre in 1997. Shrub density strip data estimated that nearly half of the population is made up of seedlings or young. Gambel oak grows in a variety of heights. Mature oak averaged nearly 4 feet in height in 1997. Density changed from 2,499 stems/acre in 1989 to 6,020 in 1997. This change is reflective of the much larger sample size used in 1997 which better estimates shrub densities which often have aggregated and/or discontinuous distributions. Where oak and juniper occur, there is litter cover and some grasses. Between trees, the ground is bare of cover.

The key understory browse species are bitterbrush and true mountain mahogany. Currently, the bitterbrush has an estimated density of 440 plants/acre with 82% being classified as mature. There are prostrate low growing forms that average only 14 inches in height. However, they have an average crown of 48 inches. Utilization was moderate to heavy in 1989, although light to moderate use was noted in 1997. Vigor is generally good and percent decadence low at 13%. The less common mountain mahogany, numbered only 20 young plants/acre in 1997. Mature plants were not encountered in the sample in 1997, but measured only for height and crown. Both species are moderately hedged. They have good vigor except when under the spreading oakbrush clones.

Grasses are scarce, although a fair stand of Kentucky bluegrass (moderately shade tolerant and an increaser with grazing) was found under the oak. However, it provides little available forage. All grasses combined produce only 2% cover. Forbs are also scarce, yet 18 species were identified. Only the small longleaf phlox are very abundant.

1989 APPARENT TREND ASSESSMENT

Even with all the bare interspaces, erosion is not excessive due to the gentle slope. The soil appear stable. Due to the increasing oak and juniper, browse trend looks to be declining. Another negative factor is the depleted understory.

1997 TREND ASSESSMENT

The soil trend is stable but in poor condition. Soil movement is noticeable but moderated by the lack of slope. Oak and juniper are increasing their dominance of the site and trend is down slightly for the more desirable understory species like bitterbrush. Overall trend for browse on this winter range is down slightly. Trend for the herbaceous understory is down for perennial grasses and up slightly for perennial forbs. Overall trend is considered down slightly and in poor condition because they combine for only 3% cover.

TREND ASSESSMENT

soil - stable, but poor (3)

browse - down slightly with the increasing dominance of juniper and oakbrush (2)

herbaceous understory - down slightly and in poor condition (2)

HERBACEOUS TRENDS --

Herd unit 16B, Study no: 12

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %
		'89	'97	'89	'97	'97
G	Agropyron smithii	_b 29	_a 8	13	6	.05
G	Agropyron spicatum	3	9	2	4	.04
G	Bromus tectorum (a)	-	47	-	17	.13
G	Carex spp.	-	6	-	4	.25
G	Oryzopsis hymenoides	_b 38	_a 17	17	8	.19
G	Poa pratensis	_b 141	_a 75	57	30	1.10
G	Poa secunda	-	5	-	3	.04
G	Sitanion hystrix	14	18	9	8	.26
Total for Annual Grasses		0	47	0	17	0.13
Total for Perennial Grasses		225	138	98	63	1.95
Total for Grasses		225	185	98	80	2.08
F	Achillea millefolium	2	8	1	3	.04
F	Arabis spp.	5	1	3	1	.00
F	Artemisia ludoviciana	-	3	-	1	.00
F	Astragalus convallarius	4	11	3	7	.11
F	Chaenactis douglasii	_a 1	_b 13	1	6	.10
F	Cirsium spp.	1	-	1	-	-
F	Cryptantha spp.	2	8	2	3	.06
F	Cymopterus longipes	-	3	-	1	.00
F	Cynoglossum officinale	1	-	1	-	-
F	Epilobium brachycarpum (a)	-	3	-	1	.00
F	Erysimum spp.	-	-	-	-	.00
F	Hackelia patens	3	8	2	4	.02
F	Microsteris gracilis (a)	-	10	-	5	.02
F	Oenothera spp.	-	2	-	1	.03
F	Penstemon spp.	-	2	-	2	.03
F	Phlox longifolia	46	54	24	20	.25

T y p e	Species	Nested Frequency		Quadrat Frequency		Average Cover %
		'89	'97	'89	'97	'97
F	Polygonum douglasii (a)	-	1	-	1	.00
F	Ranunculus testiculatus (a)	-	11	-	6	.05
F	Senecio multilobatus	5	-	3	-	-
F	Streptanthus cordatus	8	10	4	4	.19
F	Taraxacum officinale	-	3	-	2	.01
F	Veronica biloba (a)	-	45	-	20	.17
Total for Annual Forbs		0	70	0	33	0.26
Total for Perennial Forbs		78	126	45	55	0.88
Total for Forbs		78	196	45	88	1.15

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Herd unit 16B, Study no: 12

T y p e	Species	Strip Frequency	Average Cover %
		'97	'97
B	Artemisia tridentata vaseyana	4	.15
B	Cercocarpus montanus	1	.00
B	Juniperus osteosperma	24	16.18
B	Pinus edulis	2	.63
B	Purshia tridentata	12	3.96
B	Quercus gambelii	62	22.93
B	Rosa woodsii	1	-
B	Symphoricarpos oreophilus	2	.15
Total for Browse		108	44.02

CANOPY COVER --

Herd unit 16B , Study no: 12

Species	Percent Cover
	'97
Juniperus osteosperma	8.8
Quercus gambelii	10.8

Point-Quarter Tree Data

Trees per Acre	Average diameter (in)
'97	'97
253	6.0
-	-

BASIC COVER --

Herd unit 16B, Study no: 12

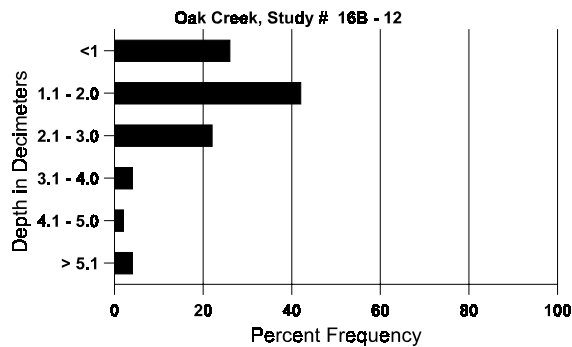
Cover Type	Nested Frequency	Average Cover %	
	'97	'89	'97
Vegetation	253	3.00	45.22
Rock	75	1.75	1.26
Pavement	135	11.75	5.31
Litter	379	63.00	60.33
Cryptogams	36	.75	1.39
Bare Ground	178	19.75	15.09

SOIL ANALYSIS DATA --

Herd Unit 16B, Study no: 12, Oak Creek

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
12.6	57.6 (13.9)	7.3	41.7	26.1	32.2	2.8	7.8	60.8	.4

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 16B, Study no: 12

Type	Quaency Frequency
	'97
Sheep	1
Rabbit	12
Elk	4
Deer	9
Cattle	1

BROWSE CHARACTERISTICS --

Herd unit 16B, Study no: 12

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	1	-	-	-	-	-	1	-	-	-	20		1	
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	97	1	-	-	2	-	-	-	-	-	3	-	-	-	60	29	32	
D	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%										
'97		20%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'89	0	Dec:	0%	
														'97	100		20%	
Cercocarpus montanus																		
Y	89	1	1	-	-	1	-	-	-	-	3	-	-	-	100		3	
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	89	-	1	1	-	-	-	-	-	-	2	-	-	-	66	25	47	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	54	72	
D	89	-	1	-	-	-	-	-	-	-	-	-	1	-	33		1	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		67%			17%			17%			-90%							
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'89	199	Dec:	17%	
														'97	20		0%	
Chrysothamnus viscidiflorus viscidiflorus																		
Y	89	1	-	-	-	-	-	-	-	-	1	-	-	-	33		1	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%										
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'89	33	Dec:	-	
														'97	0		-	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Juniperus osteosperma																		
S	89	-	-	-	1	-	-	1	-	-	2	-	-	-	66		2	
	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
Y	89	7	-	-	2	-	-	1	-	-	10	-	-	-	333		10	
	97	9	-	-	-	-	-	1	-	-	10	-	-	-	200		10	
M	89	3	-	-	-	-	-	-	2	-	5	-	-	-	166	128	79	
	97	9	1	-	-	-	-	6	1	-	17	-	-	-	340	-	-	
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%			+ 8%							
'97		04%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	499	Dec:	-			
												'97	540		-			
Pinus edulis																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	97	1	-	-	1	-	-	-	-	-	2	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%										
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	0	Dec:	-			
												'97	40		-			
Purshia tridentata																		
Y	89	-	1	-	-	-	-	-	-	-	1	-	-	-	33		1	
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	89	-	15	2	-	-	-	-	-	-	16	-	1	-	566	10	23	
	97	1	7	-	-	10	-	-	-	-	18	-	-	-	360	14	47	
D	89	2	-	-	-	-	-	-	-	-	2	-	-	-	66		2	
	97	-	1	-	-	2	-	-	-	-	2	-	-	1	60		3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		80%			10%			05%			-34%							
'97		91%			00%			05%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	665	Dec:	10%			
												'97	440		14%			

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Quercus gambelii																		
S	89	2	-	-	1	-	-	4	-	-	7	-	-	-	233			7
	97	4	-	-	3	-	-	-	-	-	7	-	-	-	140			
Y	89	12	16	-	4	-	-	-	-	-	19	12	1	-	1066			32
	97	70	-	-	3	-	-	-	-	-	73	-	-	-	1460			
M	89	4	7	1	-	6	-	-	-	-	11	7	-	-	600	58	28	18
	97	209	-	-	8	-	-	4	-	-	221	-	-	-	4420	40	35	221
D	89	13	8	-	-	4	-	-	-	-	3	22	-	-	833			25
	97	7	-	-	-	-	-	-	-	-	6	-	-	1	140			
X	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	880			
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		55%			01%			01%			+58%							
'97		00%			00%			.33%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	2499	Dec:	33%			
												'97	6020		2%			
Rhus trilobata																		
D	89	-	2	-	-	-	-	-	-	-	2	-	-	-	66			2
	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		100%			00%			00%			00%							
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	66	Dec:	100%			
												'97	0		0%			
Rosa woodsii																		
Y	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20			
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%			00%							
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	0	Dec:	-			
												'97	20		-			
Symphoricarpos oreophilus																		
Y	89	8	-	-	-	-	-	-	-	-	3	5	-	-	266			8
	97	-	-	-	1	-	-	-	-	-	1	-	-	-	20			
M	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	97	-	-	-	3	-	-	-	-	-	3	-	-	-	60	-	-	3
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'89		00%			00%			00%			-70%							
'97		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'89	266	Dec:	-			
												'97	80		-			